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New study finds Seattle Fault EQ poses significant threat to Central Puget Sound

Camp Murray, Wash. – A recently completed three-year study finds a major earthquake on the Seattle Fault poses a significant threat to the Central Puget Sound region. The study will be the subject a conference today that begins at 10 a.m. at the Bellevue Double Tree Inn. Attending the conference will be more than 475 local, state, and federal officials as well as private sector business representatives.

In the study, a 12-member team of scientists, engineers, planners, emergency managers, and social scientists examined what might happen in a magnitude 6.7 earthquake on the Seattle Fault. The team, in a report published later this spring, also makes high-level recommendations to local and state decision makers on improving earthquake safety in the impacted region and the state.

The Seattle Fault Earthquake Scenario project began in 2002 as public and private sector experts grew increasingly concerned about earthquake safety as the region learned more about the fault. Using recent geologic findings, other current research, and knowledge of land-use and development trends, the project team worked collectively to forecast the impact of a scenario earthquake in the heavily populated Central Puget Sound region. Their scenario projected a magnitude 6.7 earthquake at shallow depth that raises the south side of the fault 6.5 feet. The fault ruptures the surface for 14 miles, from Harbor Island east to Issaquah.

The study projected the following impacts of such an earthquake in Central Puget Sound:

- 1,660 dead, and 24,200 injured.
- 9,700 buildings destroyed, 29,000 buildings severely damaged and unsafe to occupy.
- 154,500 buildings moderately damaged with use restricted.
- 130 fires burn.
- All six major highways experience partial closures lasting months due to substantial damage, and collapsed bridges.
- Utilities cut in areas with poor soils.
- Port facilities badly damaged, use restricted.
- Operations of businesses relying on "just-in-time" deliveries disrupted by collapsed supply warehouses, transportation closures, and communication outages.
- $33 billion in damages, second only to the 1994 Northridge Earthquake in southern California.
- By comparison, the 6.7 magnitude Nisqually Earthquake of Feb. 28, 2001caused no deaths, 320 injuries and economic damage of between $2 and $4 billion.

The study team made the following priority recommendations:

- Establish a funded state-level seismic safety board or commission, reporting directly to the Governor to recommend polices and programs to reduce the earthquake risk in Washington.
- Require mandatory seismic retrofits of high-risk buildings, such as unreinforced masonry and tilt-up structures.
- Identify critical public facilities with a high seismic risk and establish plans to improve their earthquake safety.
- Quicken the pace of protecting seismically vulnerable critical transportation infrastructure, such as freeways, highways, and local bridges.

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Other recommendations from the Seattle fault study team included:

- Accelerate earthquake hazard assessments, geological mapping, and the use of such studies.
- Develop innovative programs to educate and motivate the public, public agencies, and the business community to act so they are self-sufficient for at least 72 hours following an earthquake.
- Provide adequate funding to upgrade the region's seismograph network to make it more robust and to enhance its capabilities.
- Develop incentives to increase the level of seismic safety in public and private buildings.
- Establish an earthquake information clearinghouse to improve access to best available science and best practices for earthquakes.

Members of the Seattle Fault study team are:

- **Don Ballantyne**, P.E., director, operational risk and performance consulting division, ABS Consulting, Seattle; and board member, Earthquake Engineering Research Institute, Seattle.
- **Stacy Bartoletti**, P.E., S.E., structural engineer and principal, Degenkolb Engineers, Seattle, and board member, Cascadia Region Earthquake Workgroup.
- **Susan Chang**, Ph.D., P.E., senior principal engineer, geotechnical earthquake engineer group, Shannon and Wilson, Inc., Seattle; and immediate past director of technical groups for Seattle section – American Society of Civil Engineers.
- **Barb Graff**, manager, division of emergency preparedness, city of Bellevue Fire Department.
- **Gregory MacRae**, Ph.D., P.E., associate professor, Department of Civil and Environmental Engineering, University of Washington.
- **Jacqueline Meszaros**, Ph.D., Associate Professor - Business, University of Washington, Bothell, WA., and Program Director, Decision, Risk and Management Sciences, National Science Foundation, Arlington, VA.
- **Ines Pearce**, program manager, Seattle Project Impact, city of Seattle Emergency Management; and board member, Cascadia Region Earthquake Workgroup.
- **Mark Pierepiekarz**, P.E., S.E., engineer and president, MRP Engineering, LLC, Newcastle; and president, Seattle chapter, Structural Engineers Association of Washington.
- **Jane Preuss**, AICP, land use and environmental planner, Planwest Partners, Kirkland.
- **Mark Stewart**, hazard mitigation strategist, Washington Emergency Management Division, Camp Murray.
- **Dave Swanson**, P.E., S.E., principal and director, structural engineering, Reid Middleton Inc., Everett; and chair, emergency preparedness committee, Structural Engineers Association of Washington.
- **Craig Weaver**, Ph.D., seismologist and Pacific Northwest coordinator, National Earthquake Program, U.S. Geological Survey, Seattle; and board member, Cascadia Region Earthquake Workgroup.

About 75 professionals from various disciplines and organizations contributed more than 3,000 hours to the Seattle Fault Earthquake Scenario project. The project received a contribution from the Earthquake Engineering Research Institute of Oakland, CA, with funds coming from the EERI Endowment Fund and through a cooperative agreement between EERI and the Federal Emergency Management Agency. The Washington Military Department's Emergency Management Division is funding printing of the project team's report.

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Note: Both Rob Harper and George Crawford will be attending the conference today from 10 a.m. to 4 p.m. at the DoubleTree Hotel Bellevue where the results of the Seattle Fault study will be discussed.